The image shows the front cover of a book. The main part of the cover is decorated with a marbled paper pattern, specifically a 'stone' or 'shell' pattern in shades of brown, tan, and cream. A vertical strip of plain brown material, likely leather or cloth, forms the spine on the left side. In the bottom-left corner, there is a red rectangular label with a white section at the top containing the text 'TX 145 .M3'. Below the white section, the words 'Research Library' are printed in white on the red background.

TX
145
.M3

Research
Library

No. TX 146. M3



6009.367

Ent. 7/23/32

Thrift Series No 1



TX/45
M3

6009.367

The Commonwealth of Massachusetts

ISSUED BY

COMMISSIONER OF STANDARDS

THURE HANSON, Commissioner State House, Boston



It was Peggy's first day home after school closed in June. With an exclamation of joy Peggy opened her blue eyes to her first vacation day. No more school for two months and a half! Peggy jumped out of her little cot with a great "Hurrah!"

And then suddenly she remembered the new order of affairs that was to go into effect in her home this very day! Only the night before she and her mother had planned it. Peggy was to be mother's helper this summer. And she was going to get a real salary for her work and earn money for the first time in the thirteen long years of her life.

"Hurrah," hummed Peggy as she dressed hurriedly. Wasn't this going to be a glorious adventure! But the thought that sent her dancing merrily down to her breakfast (a trifle late for a helper — but many things are overlooked one's first day) was: no more arithmetic for a long time!

"Ready, Peggy?" asked her mother a little later, looking up from the beginnings of a loaf cake.

Peggy saluted, real military fashion. "Aye, aye, Captain Mother," she said, standing at attention in her miniature Hoover apron that her mother had made for her.

"Did you ever hear about denominate numbers?" began her mother, reaching for the flour.

Peggy nearly jumped out of her apron in surprise. "What have they got to do with cake?" she answered. "They're all about furlongs and acres and troy weights and kilograms."

"Well," said her mother, "denominate numbers are just tables for measuring things. When you keep house you discover that you can't do it properly without measuring something almost every half hour of your day. Now this recipe calls for three cupfuls of flour," — and she held up her half pint measuring cup, — "five level teaspoons of baking powder," — the set composed of whole, half and quarter teaspoons was pointed out, — "half a cupful of butter, a cupful and a half of sugar, and three eggs. These eggs are small so I guess I'll use four. Some recipes call for a certain measure of eggs instead of numbers, and it's much more accurate. When you measure everything your cake always comes out the same."

"Any other measurements required?" asked Peggy, beginning to be interested in spite of the denominate numbers.

"Two more," said her mother; "the oven temperature and the time. This recipe says: 'Bake forty minutes at a temperature of 240 degrees.'"

Peggy wandered over to the stove and inspected the dial on the oven door. Then catching sight of the thermometer hanging on the pantry door she studied it carefully. "Eighty-five degrees," she said.

"Don't you know what the temperature of a room should be, Peggy?" asked her mother. "It should be 70 degrees for a room where people are sitting, but 55 degrees in our bedrooms when we are out of them. Better run upstairs and take the temperature of each room. Open the windows in the bedrooms."

When Peggy returned from her first official inspection she found her mother in the cellar superintending the delivery of coal. While waiting, her mother directed Peggy to take the readings of the gas and the electric meters. "Later on," her mother said, "we'll compare them with the readings on the last bill. This helps us to find out whether the company is to blame for high bills or whether we've just been careless."

Then after levelling the coal in the bin, her mother took her steel tape and measured the height of the pile. "Two and a half feet," she wrote upon a slip of paper. "Now you will notice that the bin is exactly rectangular in shape."

"Its inside length is six and a half feet and the width four feet, so I will multiply the height by the length and multiply the result by the width, which shows the volume of the coal to be sixty-five cubic feet."

"Fifty-seven pounds to a cubic foot of white ash coal, egg size," she went on aloud. "A ton is 2,000 pounds, you know, Peggy; so the answer should be 4,000 pounds of coal."

Peggy busied herself for a moment with pencil and paper. "But it isn't," she cried excitedly. "Sixty-five times fifty-seven is three thousand seven hundred and five; so it's short weight by two hundred and ninety-five pounds."

The coal man, listening, blushed under his grimy nose. "I'll make it good," he muttered as he left.

"He's probably got the rest of it under his wig on his seat," said Peggy's mother. "There are tricks to every trade, dear, and a good housekeeper has to know how to check every one of them."

Peggy laughed. "And I thought housekeeping was just sweeping and washing dishes and cooking."

Back in the kitchen Peggy began to put things in their place. "Put the butter on the shelf just under the ice," her mother called out; "that's the coldest spot. And the eggs go at the bottom. Meat and milk and butter develop bacteria faster than any other foods and must be kept as cold as possible."

"Why don't you wrap your ice in newspaper the way Auntie does?" asked Peggy. "Doesn't it save ice?"

"Auntie and I differ on that point. You see the temperature of the refrigerator is lowered by the melting of the ice. Wrapping the ice is a good way to save it but a poor way to save food. The way to find out the coldest spot is to measure by the thermometer, of course."

Just then the grocer boy appeared with the day's order. "Where's the slip?" asked Peggy's mother. "I always require it to check up what I buy." Then she weighed each purchase on her scale. For cheese, weighing a pound, they had charged her 25 cents instead of 22 cents. "That comes from so many people ordering by the 25-cents' worth or by the piece instead of by specific weight," she said. Then she weighed the beef and the bag of trimmings that she always insisted on having sent home for soup. Together they weighed just six pounds. She had bought and paid for seven and a quarter that very morning. "I'll have to go down town and teach that grocer a lesson, Peggy," she said. "I'll go now and straighten out this affair."

"While I'm gone, Peggy," she added, "get out the scales and check up the potatoes and the apples. I bought a peck of each. The potatoes should weigh 15 pounds and the apples 12 pounds."

"You may also examine the kerosene can and see if a full gallon was delivered."

"Why," cried Peggy, looking into the top of the can, "it must be short measure, because this is a gallon can and it isn't filled to the top."

"But you mustn't jump at conclusions, Peggy," replied her mother. "Kerosene expands considerably in a warm temperature, and an oil can is usually made so that its actual capacity is at least three per cent. greater than the quantity which it is expected to contain so as to prevent the oil from overflowing. You should remember that the oil can is intended to be used as a container and not as a measure."

"Then how can I tell whether it contains a full gallon," asked Peggy, somewhat petulantly. "Must I empty the oil into a gallon measure?"

"No, I think not," and her mother produced a round pencil-shaped stick about fifteen inches long, "for I have prepared this gauge by which we may find very nearly the actual quantity. You will notice that I have carefully traced thirty-two lines, or graduation marks, upon it. The four lines, which completely encircle the gauge stick, show the height of each quart of oil in the can. The four which extend only half way round, measure the intermediate pints, while the spaces between these are in turn divided by shorter lines, each representing one gill. Now I will push the gauge gently into the can until it rests upon the bottom, and then immediately withdraw it," and she suited the action to her words. "You see that the oil now shows quite up to the gallon mark on the gauge, so the quantity is substantially correct. I prepared this gauge for this particular can, and of course it could not be used upon any other without first determining the accuracy of the graduation marks as applied to the other can."

"Whew!" exclaimed Peggy, "a housekeeper has to keep track of every little thing she buys, doesn't she? Housekeeping is like a business, isn't it?"

"Exactly, my dear. It's the most important business a woman can learn. The woman's part is spending her husband's money wisely, getting full value for every penny paid out."

Left to herself Peggy began a systematic search for every kind of measures in the house. With pencil and paper she made out a list. In the kitchen she noted the set of measures, the clock, the room and oven thermometers and the scales. In the pantry she found a glass graduate which came in handy for measuring small quantities of liquids to go into other receptacles. She found thermometers everywhere. Now indeed she knew what her mother meant when she declared that she was going to get the maximum heat out of her coal.

In the bathroom Peggy found a thermometer for baby's bath. There was the little one, the "clinical" one, to be used when any one was ill. Peggy had often had it under her tongue. Then there was the letter scale on mother's desk, to save on postage, and her own school ruler. And there was father's folding two-foot rule, and of course the tape measure in the sewing machine.

"Gracious," sighed Peggy. "All this is housekeeping. How ever did mother find it all out?"

But Peggy's mother knew, as do all good housekeepers, that their knowledge comes from many sources, some even from arithmetic and other sciences, all applied to the affairs of life in the home. Housekeeping to-day is a science, Peggy learned. She learned, too, that the State has never lost interest in furnishing this knowledge to and for its housekeepers, and that in the State House in Boston, in the Department of Standards, all this information has been put together in bulletins. These are within reach of all the Peggys and mothers who care to send for them. And there are wise words and helpful hints contained in the pamphlets which may be obtained by sending four cents to cover the cost of postage. Wise housekeepers will do well to avail themselves of infinite opportunities to perfect the science of household efficiency offered to them in these pamphlets.

LEGAL WEIGHT OF BUSHEL OR BARREL OF VARIOUS COMMODITIES
Weights of One Bushel, One Peck and One Quart of Certain Vegetables, etc., as
provided by the Laws of Massachusetts

COMMODITY	1 BUSHEL	1 PECK	1 QUART	
	Pounds	Pounds	Pounds	Ounces
Apples,	48	12	1	8
Apples, dried,	25	6 $\frac{1}{4}$	-	12 $\frac{1}{2}$
Barley,	48	12	1	8
Beans,	60	15	1	14
Beans, Lima,	56	14	1	12
Beans, shell,	28	7	-	14
Beans, soy,	58	14 $\frac{1}{2}$	1	13
Beans, scarlet or white runner pole,	50	12 $\frac{1}{2}$	1	9
Beans, string,	24	6	-	12
Beans, Windsor (broad),	47	11 $\frac{3}{4}$	1	7 $\frac{1}{2}$
Beets,	60	15	1	14
Beet greens,	12	3	-	6
Bran and shorts,	20	5	-	10
Buckwheat,	48	12	1	8
Carrots,	50	12 $\frac{1}{2}$	1	9
Corn (cracked),	50	12 $\frac{1}{2}$	1	9
Corn, Indian,	56	14	1	12
Cranberries,	32	8	1	-
Dandelions,	12	3	-	6
Feed,	50	12 $\frac{1}{2}$	1	9
Flaxseed,	55	13 $\frac{1}{4}$	1	11 $\frac{1}{2}$
Kale,	12	3	-	6
Lime,	70	17 $\frac{1}{2}$	2	3
Meal, corn,	50	12 $\frac{1}{2}$	1	9
Meal, rye,	50	12 $\frac{1}{2}$	1	9
Millet, Japanese,	35	8 $\frac{3}{4}$	1	1 $\frac{1}{2}$
Oats,	32	8	1	-
Onions,	52	13	1	10
Parsley,	8	2	-	4
Parsnips,	45	11 $\frac{1}{4}$	1	6 $\frac{1}{2}$
Peaches,	48	12	1	8
Peaches, dried,	33	8 $\frac{1}{4}$	1	1 $\frac{1}{2}$
Peanuts, green,	22	5 $\frac{1}{2}$	-	11
Peanuts, roasted,	20	5	-	10
Pears,	58	14 $\frac{1}{2}$	1	13
Peas, smooth,	60	15	1	14
Peas, unshelled, green,	28	7	-	14
Peas, wrinkled,	56	14	1	12
Potatoes,	60	15	1	14
Potatoes, sweet,	54	13 $\frac{1}{2}$	1	11
Quinces,	48	12	1	8
Rice, rough,	44	11	1	6
Rye,	56	14	1	12
Salt,	70	17 $\frac{1}{2}$	2	3
Seed, clover,	60	15	1	14
Seed, herds grass or timothy,	45	11 $\frac{1}{4}$	1	6 $\frac{1}{2}$
Seed, Sea Island cotton,	44	11	1	6
Seed, upland cotton,	30	7 $\frac{1}{2}$	-	15
Spinach,	12	3	-	6
Tomatoes,	56	14	1	12
Turnips,	55	13 $\frac{3}{4}$	1	11 $\frac{1}{2}$
Wheat,	60	15	1	14

Legal Weight, etc., per Barrel

Flour (pounds),	196
Potatoes (pounds),	165
Potatoes, sweet (pounds),	150
Liquid barrel ¹ (gallons),	31 $\frac{1}{2}$
Hogshead (barrels),	2

¹ The Massachusetts statutes provide that "in barrels and fractional parts of barrels containing malt beverages a variation or tolerance of six per cent. shall be permitted."

Thrift Series No 2



The Commonwealth of Massachusetts *C*

ISSUED BY

COMMISSIONER OF WEIGHTS AND MEASURES

THURE HANSON, Commissioner

State House, Boston

REFRIGERATION.

Refrigerators and Other Cooling Devices.

THE ordinary household refrigerator, even of the best make, is by no means as effective in the saving of ice as might be desired. The principles of operation are, briefly, as follows: a block of ice is placed in a compartment near the top of the refrigerator and having one or more openings at both top and bottom. The air next the ice becomes cool and sinks through the bottom openings of the ice chamber into the main part of the refrigerator, while warmer air from the upper part of the refrigerator enters the top of the ice chamber and is there cooled. There is thus a continuous circulation of air past the ice and through the food chamber.

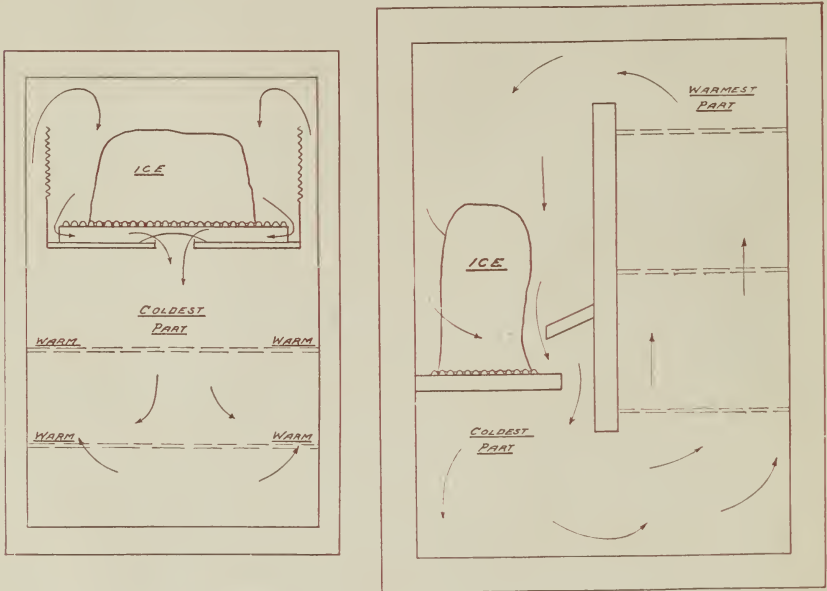


Diagram showing the circulation of air in two usual types of refrigerators. Air entering the ice chamber is freed from odors, cooled, and sinks through the bottom openings, drawing in the warmer air at the top. Butter, milk and meats should occupy the coolest space, while food having a strong odor should be placed where the air is just about to enter the ice chamber.

This circulation is important because it distributes the cooled air to all parts of the refrigerator, and also because on passing the ice the air loses some of the moisture and the odors which it has taken up from the food, especially that which is not yet cold. Therefore, anything which retards this circulation or stops up the openings to the ice chamber should be avoided.

Slow melting of the ice does not necessarily indicate a good refrigerator. Unless the ice melts it can absorb no heat and is therefore of no use in a refrigerator. Protecting the ice in a refrigerator by covering it up is a good way to save ice but a *poor way to save food*. The only proper way to use less ice is by using a refrigerator with better insulated walls, and by opening the doors as seldom and for as short times as possible.

It has been found (Bulletin No. 98 of United States Department of Agriculture) that in milk kept at 60° about fifteen times as many bacteria will

develop in one day as in milk kept at 50° F., and much the same is true of many other foods. *It is important, therefore, to find the coldest places in a refrigerator (usually near where the air leaves the ice chamber) and use these places for foods such as milk and meats, which need to be kept as cool as possible to prevent spoiling.*

The Vacuum or "Thermos" Bottle.

Another very useful device for keeping things cool, or hot, is the vacuum or "thermos" bottle. This is made up simply of one glass bottle within another with a space of from one-fourth to one-half inch between them, free from air, and the surfaces silver plated on the vacuum side. Most of the heat which leaves or enters a hot or a cold object is carried by the circulation of air, called convection, and some also by direct radiation. Thus, when air is absent there is no convection, and when the surfaces are good reflectors, like bright silver, there is very little radiation, and very little heat can enter or leave the inside of the thermos bottle. A bottle covered with a very thick layer of ground cork, feathers, cotton, wool or other such material might retain heat about as well as a thermos bottle, but would be less convenient to handle, as the insulating layer would need to be 2 or 3 inches thick instead of a quarter to half an inch.

The refrigerator and thermos bottle are by no means the only domestic cooling devices. There are several small refrigerating machines on the market suitable for use in cooling the ordinary household refrigerator. Descriptions of these would be out of place here, as they can be found in trade catalogues. Such machines all resemble the large mechanical refrigerating machines used for making artificial ice and for cooling cold-storage houses.

Cooling by Evaporation.

The natives of dry, hot climates have for centuries used cooling devices based on the cooling produced by the evaporation of water. As has been said before, to boil away or evaporate a pint of water requires about 1,000 Btu. of heat, whether the water boils in the ordinary way or evaporates into the air at ordinary temperatures (in fact, it requires more heat to evaporate water at lower temperature). If the air is dry evaporation is quite rapid even when water is cool. Thus, when water is placed in a slightly porous unglazed earthen vessel a small amount continually filters to the outside and evaporates, keeping the contents several degrees cooler than the surrounding air. This device in various forms has been used for hundreds and perhaps thousands of years.

Ice.

A cubic foot of ice (12 by 12 by 12 inches) weighs 57 pounds 8 ounces. A cubic inch of ice weighs .532 ounce. A cake 22 by 22 and 1 inch thick weighs 16 pounds, and for each additional inch in thickness the weight will increase 16 pounds. A cake 22 by 32 and 1 inch thick weighs 23 pounds, and for each additional inch in thickness the weight will increase 23 pounds.

The following table shows the weight of pieces of ice of various sizes. For other sizes multiply length by width by height (in cubic inches), and that product by .532, and divide the result by 16. This will give the weight of ice in pounds. The approximate weight of a given block of ice, in pounds, may be more quickly, though possibly less accurately, determined by using this formula: cubic inches \div 30 = pounds.

Weight of Blocks of Ice of Various Sizes.

INCHES.	Pounds.	INCHES.	Pounds.
7× 7× 7,	11	9×12×15,	54
8× 8× 8,	17	11×11×14,	56
8× 9×10,	24	12×12×12,	58
9× 9× 9,	24	8×22×10,	59
9× 9×10,	27	10×12×15,	60
8×10×11,	29	12×12×13,	62
10×10×10,	33	8×22×11,	64
8×11×12,	35	12×12×14,	67
9×10×12,	36	8×22×12,	70
10×10×11,	37	12×12×15,	72
8×11×13,	38	12×13×14,	73
8×12×12,	38	13×13×13,	73
10×10×12,	40	8×22×13,	76
11×10×11,	40	13×13×14,	79
9×10×14,	42	13×13×15,	84
10×11×12,	44	11×24×10,	88
11×11×11,	44	13×14×15,	91
11×11×12,	48	14×14×14,	91
11×11×13,	52	10×16×18,	96
11×12×12,	53	12×14×18,	101

NOTE. — The above table was compiled by the Natural Ice Association of America.

Precautions to be Observed in making Purchases.

In purchasing ice be careful to ask for a certain weight, — 25 pounds, 50 pounds, 75 pounds or 100 pounds, and do not be content to order or to accept 10-cent, 20-cent, or 30-cent pieces.

CHAP. 57, REVISED LAWS.

ICE

SECTION 44. Whoever, being engaged in the business of selling ice at retail, refuses to sell, from any place or vehicle engaged in the regular distribution of ice at retail, a piece of ice at the fair value thereof to any person, other than an ice dealer, shall, if such person tenders in payment therefor the amount of five cents or any multiple thereof not more than fifty cents in legal money of the United States, be punished by a fine of not more than one hundred dollars.

SECTION 45. A dealer in ice who refuses or neglects to provide scales for each wagon used by him for the delivery of ice or, on request of the purchaser of ice, refuses or neglects to weigh the same when delivered or gives false weight, shall for each offence be punished by a fine of not more than fifty dollars.

SECTION 46. Whoever, having charge of the delivery of ice from a wagon, not being a dealer in ice, refuses on the request of the purchaser of ice to weigh the same when it is delivered or gives false weight, shall be punished by a fine of not more than ten dollars.

Thrift Series No 3



The Commonwealth of Massachusetts *C*

ISSUED BY

COMMISSIONER OF STANDARDS

THURE HANSON, Commissioner

State House, Boston

HOUSEHOLD ECONOMICS.

Economy in Selecting, Cooking and Serving Foods. Showing how to Eat Plentifully and Wisely, without Waste.

WASTE is under indictment in this country. The spirit of the times calls for constructive, efficient conservation and economy, — the economy which will increase the nation's resources. The faithful, unflinching service of our American women symbolizes the spirit of sacrifice and patriotism which permeates our country at this time.

The attention of everybody to-day is focused on great things. We have become accustomed to think in terms of millions, — men, money, ships, guns. Everything looks large to us.

Yet in the background, overshadowed by these more obvious things, are factors which wield a vital influence in shaping the future destiny of our country.

Food Administrator Hoover says that *food* will win the war. Fuel Administrator Garfield tells us that *coal* will win the war. Each is right. Food *and* coal will win the war.

We have all learned that food in plenty is absolutely necessary to keep our army and those of our Allies fit for fighting. We realize, also, that coal is needed to transport troops and supplies, to make munitions and other war materials, and to keep our industries going.

Our housekeepers have already accomplished much by intelligent organized effort in the conservation of food. There is equal opportunity for economy in the use of coal for cooking and other household activities; whenever possible other fuels such as wood, kerosene, gas or electricity should be used for these purposes.

This number of the Thrift Series is devoted to helpful suggestions along these lines, compiled from various authoritative sources for the benefit of the housekeepers of this Commonwealth.

Fuels.

No very definite conclusions can be drawn as to the relative economy of different fuels for cooking, since this economy depends upon the sort of cooking operations considered, — whether baking, broiling or frying, etc., — and upon the skill and care of the person in charge of the work. Although the cost of gas or electricity, per heat unit, is much greater than that of coal, there is no such difference in the cost of cooking by these different methods when in the hands of equally careful persons. This is due to the increased efficiency of the appliances using the more costly fuels, and the practicability of the intermittent use of them.

While, for the more extended cooking operations, such as baking, boiling or roasting, the cost of electricity may be considered prohibitive, it is comparatively inexpensive when used in operating such devices as the radiant grill or toaster, chafing dish, coffee percolator, flat-iron, electric fan, sewing-machine or washing-machine motor, ice-cream freezer, etc.

When a modern gas range is used, with proper utensils, the greater portion of the heat is utilized, and, if the additional factors of cleanliness, comfort and convenience be considered, the use of gas for cooking may be classed as true economy.

GAS COOKING.

Helpful Hints.

1. Practice efficiency by using food chopper consecutively for bread crusts, nuts, dry cheese, meat and onions.
2. A gas toaster over a single burner makes four slices of toast in three minutes for one-eighth of a cent.
3. A gas percolator insures good coffee, with economy of material, fuel and attention.
4. Paper toweling is convenient when breading or flouring food; it is handy for greasing, for wiping out greasy pans or absorbing grease from fried food. For small bakings it substitutes well for a bread board.
5. Use a greased cup to measure molasses and a wet one for measuring solid fats.
6. Keep a supply of sifted flour in a convenient place.
7. Own scales, and use them, — not to start trouble, but to avoid it.
8. An aluminum griddle cooks evenly and saves fuel, and if the batter contains a little fat, no greasing is required. This eliminates odors.
9. A gas waffle iron uses little fuel and makes crisp, delicate waffles.

10. The gas burner that becomes clogged is cleaned quickest by removing it, inverting over another flame and burning it off.

11. Place newspaper under surface of gas range while cleaning burners, or when oiling for rust.

12. Sal soda in hot soapsuds may be used for removing grease from range; dry thoroughly afterward.

13. Gas will *not* discolor utensils unless flame is too high, or adjustment is imperfect.

Useful Utensils for Gas Cookery.

A well-equipped kitchen indicates a self-respecting cook; real labor-saving devices show good sense. The up-to-date housewife puts thought as well as skill into her cookery; fewer hours in the kitchen mean more time with the family. Results in cooking depend upon three factors, — the ingredients, the cook and the stove, and failure is folly. Without a good gas range all other conveniences are sadly inadequate. The cabinet style range with 18-inch double oven is most convenient and efficient. The waste of gas in many kitchens would soon pay for proper equipment.

Flat-bottomed utensils, with base broader than gas flame, are fuel savers. Kettles deeper than necessary contain waste space, which means waste heat. The shallow pans made for fireless cookers are of excellent shape, and may be clamped tight for slowest cookery. There is much food and fuel waste from poorly fitting covers. With no seams or grooves these pans are easily cleaned, and wear indefinitely. Aluminum holds heat better than enamel wear; cooking continues from five to twenty minutes after gas is out. Broad flat saucepans are better than deep rounded ones for vegetable cookery. An enamel saucepan is desirable for boiling potatoes, which discolor aluminum. If food *does* burn set container into cold water, then remove portions which do not stick to pan; there will be no scorched taste.

Iron ware should be heated gradually. It also holds heat well. For extended cookery these two metals are most economical, with no chance of chipped enamel. The iron kettle with iron cover, or "Dutch oven," is fine for pot roasts and similar dishes. The smallest gas flame is sufficient after preliminary browning, and the back corner burner most protected from draft. Another material for slow cookery is shown in the new unglazed casseroles. With an asbestos mat for protection these can be used over the gas with excellent results, and are ready for table service. Hot dishes for hot food are always in readiness on the shelf over a gas range.

A broad-based double boiler with ample capacity needs little attention. Frequent replenishing of water during cookery also indicates bad fuel management. Baking dishes of earthenware or glass give better service than enamel or aluminum. Casseroles are almost indispensable for economical cookery. Recipes are less important than methods. Every experienced housewife prizes her casserole; every beginner should possess one. Oven heat below 300° is best for most casserole cookery. This can be maintained for a cent and a half an hour, with absolutely no attention or risk, but ample time is essential. Covered roasters are satisfactory for tough meat, fowl and pork, but an open pan is best for choice roasts of beef or mutton.

For baking purposes aluminum or good tin give better results than enamel. Aluminum bakes uniformly from first to last; tin needs "breaking in;" enamel cooks unevenly and batter is apt to stick. Small muffin pans give a maximum of delicate crust with a minimum of fuel and time. Fireless cookers have certain uses, but for general cookery they do not permit proper ventilation of foods for wholesomeness and flavor.

Gas is wasted by —

1. Lighting before filling teakettle.

2. Heating more water than cooking requires.

3. Using large burner when small would do.

4. Using small burner when simmerer would do.

5. Leaving flame on full after foods boil.

6. Letting flame extend beyond utensil.

7. Leaving gas on from one process to another.

8. Heating oven too hot or too long beforehand.

9. Leaving oven lighted until baking is finished — retained heat will bake for five or ten minutes without gas.

10. Using yellow flame from dirty burner or dusty mixers; clean burners give a hotter blue flame.

11. Heating dishwater in teakettle instead of installing an efficient water-heater.
12. Poorly planned meals — heated oven space not utilized.

LARGE GAS BILLS ARE OFTEN DUE TO WRONG UTENSILS. TRY IT OUT.

A small, well-selected equipment has every advantage over a large mixed collection of utensils. Kitchen convenience is a reflection of the worker, and drudgery is forgotten when one is interested in her task.

Care of the Gas Range.

Non-edible fats are useful in the care of the gas range; any that are free from salt may be used to prevent and remove rust. Various oils are also sold for this purpose. In damp weather, frequent use is desirable. When the house is to be closed for any time the range should be rubbed all over lightly with some neutral fat; *not* kerosene. Oven rust may be largely prevented by the precaution of leaving the door open a minute after lighting gas, while moisture condenses. The oven should also be left open to cool off after baking is done.

A few moments taken each morning to clean the gas range is time well spent. A sheep-skin mitt is the best article for this purpose, and protects the hand from dirt. Stove blacking is a thing of the past with the modern gas range. The drip pan should be washed daily. The broiler pan is a cheerless sight after the juicy steak has been cooked, but add a little sal soda to the water when you fill it and let it soak while dinner is served; it is then easily washed with a brush and hot suds.

Bread Baking.

HELPFUL HINTS.

1. Milk makes tender white bread, but water bread keeps fresh longer.
2. Too soft a loaf falls in baking; too stiff a mixture cracks open.
3. Overbaked bread dries quickly; an underbaked loaf is doughy and unwholesome.
4. Too slow an oven makes a coarse, hard loaf; too much heat a thick crust and soggy center.
5. Sour bread does not brown properly.
6. Sponge-made bread has better grain, and keeps moist longer than dough made stiff at the start.
7. For baking purposes aluminum or good tin give better results than enamelware or sheet iron. Aluminum bakes uniformly from first to last; tin needs "breaking in;" enamel cooks unevenly and batter is apt to stick. Small muffin pans give a maximum of delicate crust with a minimum of fuel and time.
8. Make part of risen dough into rolls, and keep in cold place well covered, to bake for breakfast the next morning.
9. Small families who find no economy in baking several loaves at once can reserve part of risen dough for future baking, allowing ample time to rise after being chilled.
10. Home-made coffee cake sweetened with brown sugar or honey is a welcome breakfast bread, more delicious than store goods and more wholesome than doughnuts. Requiring less fat and sugar than the latter, coffee cake is commendable "food conservation."
11. Rolls, muffins or corn bread may be satisfactorily reheated in a closely covered pan, or paper cooking bag. Loaf bread can be freshened perfectly in the same way. Do not moisten or it will be soggy.
12. Steamed brown bread is wholesome, inexpensive and easily made; it keeps well, reheats perfectly and is universally liked.

BREAD.

Home-made bread is easily the most economical food in the average family; there is practically no waste. With vegetables and fruit it makes a satisfying meal. Good bread and milk form a splendid combination for the growing child, but coffee and bread is no meal for children. The home-canned fruits and jams serve admirably with the choice loaf from our own ovens. Less meat is eaten — other food goes farther — with good bread on the table; and fewer cooked desserts are demanded. Baker's bread may be the easy way, but is rarely the thrifty way. If children are to be well fed, home-made bread must not be denied them. It is the one food which never falls.

The baker's loaf, because of extreme lightness, makes better toast, and we may well buy

it for that purpose, but it has neither the food value nor staying powers of delicious home-made bread. The quality of bread depends largely upon the flour; a good grade not only makes better bread, but more of it. New products must be carefully tested; it is not fair to condemn with a single trial. The "wheat-savers" — rye, barley, oatmeal and corn meal — produce excellent bread, with about one-fourth as much white flour, to make an elastic dough. Barley flour makes good bread with as little as one-sixth of white flour; combined with corn meal it makes fine muffins and griddle cakes, and for gingerbread and sponge cake requires no other flour. Oatmeal bread, made with partially cooked rolled oats, is the most economical and satisfactory yeast loaf for saving wheat. Potato water makes a moist, tender loaf. Thorough baking of coarse breads is necessary for keeping quality.

Compressed yeast saves time; dry yeast saves expense. In evenly heated modern homes bread can be set over night (as necessary with dry yeast) without fear of chilling, as in kitchens a decade ago. With proper temperature at the time of mixing and a protected container bread continues to rise as the kitchen cools, but it should not become chilled during the first rising. In cold kitchens a cook stove is a poor system to keep the bread warm — a little gas heater does the work more efficiently. The short daytime process with compressed yeast is certainly advantageous. Sugar hastens rising, but salt and shortening retard it, and so are not added to the sponge until light. Vegetable oils, or drippings rendered in the gas oven, answer for bread shortening, but rancid fat ruins flavor. Mixing may be done with a wooden spoon, blunt knife, bread mixer or hands, but absolute cleanliness is essential. For large bakings the bread mixer is invaluable. It is a careless cook who spills flour, an untidy one who wastes dough in the bowl or on the hands or bread board. Stirred breads are easy to make, but of coarser texture than a stiff dough.

Proper baking is the stumbling block of the inexperienced cook. An oven thermometer is indispensable, as it eliminates worry and waste. With gas the heat is easily regulated and perfect baking is not "luck" but certainty. Risen loaves need never be held back because the oven is not ready, as six or eight minutes will secure correct temperature. Comparative costs of home-made and baker's bread prove unsatisfactory for different sections of the country. Prices of flour, sugar and fats fluctuate. Baker's products vary greatly, but the advantage of pure materials, clean methods, quality products and preferred results balances the account in favor of the home loaf. *Baking costs* are easily figured.

Oven economy can only be practiced by forethought. Cooking plans should fill the oven when its use is required; food for later service may be oven-cooked while bread is baking.

We can estimate local cost of bread ingredients and fuel for baking, but time is an uncertain element. The average woman spends three-quarters of an hour in the actual making and attention to the baking of three or four loaves of bread. If she turns out sweet, crisp, tender, luscious loaves her time is well spent, however high she may value it. If her bread be soggy, hard, sour or unpalatable she has wasted not only time and fuel, but abused the valuable products of her country. A batch of perfect bread is worthy of any woman's skill, and promises well for the health and happiness of her family.

When baking in gas range heat oven to 365°; place loaves on lower rack and reduce flame slightly. After ten minutes turn loaves to insure even surface (thermometer shows about 425°), and lower gas to small flame. Forty to fifty minutes from time oven is lighted turn gas out; retained heat will finish the baking in the last ten or fifteen minutes.

HOW TO USE FLOUR SUBSTITUTES AND GET GOOD RESULTS AS USUAL.

How to save. — Before the war you knew how to cook. You knew what should be the consistency of a pancake batter or a cake dough. In all cases you had your own recipes, good old "standbys," treasured in the family for generations, gathered from cousins, friends and neighbors, or made up out of your own head under the stress of circumstances.

But war conditions have made many of your recipes impractical. Wheat flour no longer figures in the recipes of the 100 per cent. patriotic. And your calls have gone out for recipes which use the new flours.

These include barley flour, oatmeal, oat flour, corn flour, corn meal, rice flour and buckwheat.

In the experimental kitchen of the United States Food Administration certain general things about these wheat substitutes have been found to be true. Seemingly they will not substitute in a recipe "cup for cup" and give good results. But "weight for weight" the results are excellent.

To English or Canadian women this bit of news would seem very practical. In those

countries they do most of their cooking with a pair of scales instead of a measuring cup. But American women, as a rule, have never done that, and so for the present at least they require a translation into measuring cups.

Fortunately this has been arranged. The following table will show how much of each of the common substitutes to use in place of a cup of wheat flour — both the bread flour and the pastry flour.

Table of Flour Substitutes.

In place of a cup of wheat flour (bread flour) use: —	In place of a cup of wheat flour (pastry flour) use: —
1½ cups barley flour.	1½ cups barley flour.
1½ cups ground rolled oats.	1 cup ground rolled oats.
1 cup corn flour.	¾ cup corn flour.
1 cup (scant) fine corn meal.	¾ cup (scant) fine corn meal.
1 cup (scant) oat flour.	¾ cup (scant) oat flour.
¾ cup (generous) coarse corn meal.	¾ cup coarse corn meal.
¾ cup (generous) rice flour.	¾ cup rice flour.
¾ cup (generous) buckwheat.	¾ cup buckwheat.

In most recipes, except those which use yeast as a lightening agent, these substitute very nicely for wheat flour. Even in yeast breads a very high proportion of them can be used.

Fish from Market to Meal-time.

HELPFUL HINTS.

1. In season use local fish to save transportation costs; they are fresher and better than even choice varieties from a distance.
2. Frozen fish is wholesome food if frozen when caught, and kept frozen until it reaches the consumer.
3. Canned fish of a reliable brand should be in every pantry for occasional use as well as for emergencies.
4. Salt fish needs careful cookery; a dish of creamed codfish is delicious or detestable according to preparation.
5. Smoked fish deserves more attention; it can be used as a relish, in sandwiches, grilled on toast, steamed, creamed or baked in milk.
6. Broiling is the simplest and most wholesome way of cooking fish; it is easily done by gas, with no overheated cook.
7. The boning of fish is especially desirable where children are served.
8. Fish baked in a ventilated gas oven does not affect other foods, so that the whole meal may be oven-cooked.
9. A green salad, sliced tomatoes or an acid sauce combine well with fish. The juice of quartered lemons is obtained more easily than that of slices.
10. Grape fruit is a pleasing exception to the rule against serving fruit after fish, and makes a good finish.
11. Remove skin and bones from left-over fish while it is still warm.
12. Use sal soda and hot suds to wash fish utensils and to scald the sink.
13. Use dry mustard to remove fish odor from the hands.

FISH.

The increased use of fish has the advantage of conserving meats, and giving wholesome variety. It is economical food and easy to cook. Home-cooked fish is far superior to that in restaurants, as prompt service is important. With a good gas range fish cookery is simplified and fuel cost is small. Many do not care for fish because it is not properly cooked. Care is more necessary than skill, and a little experience produces fine results. Fish should be served as meat, not preceding it. Oily fish like shad and salmon are more like meat than cod and lake fish because of the fat they contain. In nutriment the fat is the main difference, and in digestibility fish compares favorably with meat.

For real economy there should be no set day to eat fish, as this causes waste on other days and adds to the price we pay. Perhaps "every day will be fish day by and by." The variety that is scarce and high should be passed by for the kind that is plentiful and low.

Price is regulated by distance as well as variety. Know your fish market. Personal inspection is most important in buying fish. Firmness is the first consideration. Soft, watery flesh is the first sign of spoiling; a disagreeable odor is the second. At the season when fish is plentiful it is frozen in large quantities, to be held until needed, and to equalize distribution. Cold storage, when rightly maintained, is of great benefit to the public; but much harm follows through ignorance. People demand fresh fish and refuse the frozen variety, which forces the dealer to thaw his fish beforehand. Storage products lose flavor rapidly after thawing, and spoil quicker than fresh foods. The wise ones buy frozen fish and thaw it themselves. It will thaw at room temperature or in cold water, and if cooked at once is excellent.

Salt fish has high food value, is always available and can be used in many ways. Smoked fish has its seasons, and dries out rapidly after ten days. Avoid extended cookery or high temperature for either. Canned salmon is a splendid food, with many possibilities. Fresh-cooked foods are fine, but on busy days, better a canned meal than a cross cook. Be prepared for the Lenten season and emergencies. Of fresh fish one thick slice is better than two thin ones; large fish at 25 cents per pound is cheaper than small at 20 cents, due to the proportion of waste. Left-over fish can be creamed, scalloped or made into fish balls. It is delicious served cold with mayonnaise and chili sauce.

Fish should be cleaned as soon as it enters the house. Keep one pan for washing fish, use plenty of cold water, but do not soak it (except to thaw). Drain well and *wipe dry* when cleaned. If not to be cooked at once, wrap in dry cloth, then in heavy paper and put in a cool place. Do not put *on ice*, but the refrigerator shelves may be used, as paper prevents spreading odors. Split boned fish is easy to broil under gas flame, and attractive too. Who can complain of meatless days when choice broiled fish is obtainable? For guest affairs there are few superior dishes. It is easy for cook and carver alike, and popular with all good livers. Dip small fish in milk and roll in seasoned meal; sauté in pork fat to save deep frying. Overcooked fish is "wooly"; undercooked fish is unwholesome; the flakes separate readily when fish is done. Steaming is more economical than boiling unless the liquid is used for a fish sauce. There are many recipes, but all are included in a few general methods. Fish cookery is well worth mastering.

There are many palatable fish which are little used, or comparatively unknown. Do not be afraid to try different varieties. Write to the Bureau of Fisheries, Washington, D. C., for free government circulars on fish. They are interesting and valuable.

Meat, and How to Make the Most of It.

HELPFUL HINTS.

1. Cook meat for several meals when possible, but use only a portion at a time; reserving balance before serving prevents anticipation of reappearance.
2. Avoid washing meat — wipe with a damp cloth but do not waste juices with water.
3. Extend use of cheaper cuts with dried vegetables or cereal products and plenty of gravy.
4. Utilize every particle of meat fat to save butter, lard and commercial shortening.
5. Brown all or part of meat for stews, etc., to improve color and flavor.
6. Thicken liquid beforehand for casserole meat and ragout, to increase richness and shorten cooking process.
7. A variety of seasonings, as bay leaves, garlic, cloves, pepper-corns, dried parsley and celery leaves — also different herbs — are valuable aids in meat cookery.
8. A 5-pound stewing hen is more economical than a 3-pound roasting fowl, and admits of more variations.
9. Sausage, bacon and small chops can be broiled on a rack in a pie pan, instead of using the large broiler.
10. Prejudice against boiled meat may be overcome by draining meat when tender, dredging with flour and browning it well in meat drippings, the gravy to be served separately.
11. Real soup (the full meal variety) with vegetables, grains, bits of meat and the rich flavor from long, slow cooking is easily made with the steady heat of gas.

MEAT ECONOMY.

No sacrifice is necessary in the reduction of meat purchased, if every bit be used to best advantage. Marketing is a personal matter. Marketing offers a choice; ordering results in the dealer's choice. Good meat is firm and fat; lean meat lacks flavor and requires additional

fat. Look for the government stamp to insure wholesomeness. For roasting and broiling, meat must be tender. Tough cuts are made tender by the acid of lemon juice or vinegar, by grinding, by pounding, or, best of all, by extended cookery, as stews and casserole dishes. The finished product contains no more nutriment than at the start, but may lose much in cooking; proper regulation of heat is essential. There is more loss in weight of meat roasted in the closed oven of a cook stove than in the ventilated oven of a gas range. Continued even heat softens the toughest fiber. Certainty of result is an incentive; "luck" has no place in gas cookery.

All meats require strong heat at first to save juices. A large roast is more economical than a small one in food value, flavor and fuel. Place meat on a rack in roasting pan. Crisp quickly on each side under the gas flame, then season, reduce heat and finish cooking on lower slide or transfer to baking oven. Use no water for choice beef or mutton, but baste with its own fat. Make a stock in the oven at the same time with bone, meat trimmings and vegetables as foundation for gravy. A full oven meal should be planned to conserve fuel.

A fine broiled steak is a luxury to-day, but for a special treat there is nothing better. Boned meat is easy to carve, but flavor is finer with the bone. Cut edges of steak at intervals to prevent curling. The tough end may be removed before broiling, to be chopped for meat roll. Heat gas oven well to insure quick crisping. Brown each side under gas flame, and avoid piercing flesh with fork. Reduce flame, season lightly and finish cooking on a lower slide. Leave lower oven door open while broiling, to avoid smoke and smell. Many cooks give up broiling after a few unfortunate trials with the door closed. Oven heat during broiling serves admirably for pop-overs, biscuit, paned tomatoes, baked bananas, reheated potatoes or a simple pudding. Left-over steak, if thick and rare, is as good sliced as cold roast beef. The bone and trimmings are simmered afterward with cold water and seasonings to make a good cup of stock.

SOME ADVANTAGES OF SLOW COOKERY FOR ALL TOUGH MEATS, AND SOME VEGETABLES.

1. Conserves food value.
2. Softens meat tissue and vegetable cellulose.
3. Aids digestibility.
4. Develops flavor.
5. Reduces cooking odors.
6. Decreases evaporation of liquid.
7. Retains moisture in food.
8. Foods retain shape.
9. Prevents scorching.
10. Eliminates watchfulness.
11. Reduces utensil wear.
12. Lessens dish washing by preventing discoloration.
13. Cuts fuel costs in half.

It is so simple that few have faith in it; so easy that it seems too good to be true. A slight sound of bubbling is sufficient evidence of cooking.

FOR MEATLESS DAYS.

A well-balanced meal consists of meat, fish or its equivalent, one starchy and one green vegetable, with perhaps a simple sweet. In place of meat we use eggs, cheese, milk and the legumes, — lentils, peas and beans. The soy bean is high in food value and low in cost; it needs more soaking and longer cooking than other varieties. Split peas, yellow and green, also cow peas, are palatable foods if carefully seasoned. Milk as used in cream soups is an economical food and excellent for children. Cheese dishes are admirable if not overcooked. Even the notorious Welsh rarebit is a good luncheon dish, well balanced with a simple green salad. All meat substitutes need slow, careful cookery. Avoid intricate recipes and elaborate combinations; simple dishes are best.

With food conservation a national issue, cooking is at a premium. As much food is wasted by bad cooking as by throwing away what might be used. Full garbage cans are direct evidence of extravagance; good food badly prepared eventually proves *more* wasteful through poorly nourished bodies.

Vegetables.

HELPFUL HINTS.

1. When cooking enough of any vegetable to allow for another meal, reserve the portion desired before adding sauce or butter, serving "just enough" and no more.
2. Rice to serve with boiled mutton or fowl may be cooked in the same liquid, if placed in a cheesecloth bag, and easily drained for separate service.
3. Never add salt to cold water when crisping cucumbers or other vegetables, as it toughens them.
4. Vegetables that are odorous can be cooked early and kept hot. Any creamed vegetable is improved by standing over hot water awhile; early preparation is also of practical advantage in hot weather, and for guest dinners.
5. Lettuce leaves that are unsightly, but edible, may be rolled tight and shredded with a sharp knife for salad or garnishing.
6. Use celery leaves (fresh or dried) for soup; the coarse outer stalks may be creamed; use the next portion for salad, and the choice center for fresh service.
7. Dry parsley quickly to retain color, rub through strainer or wire pie pan, and keep in tightly corked bottle for flavor and garnishing.
8. To bake new potatoes, boil until almost done, drain well and bake in hot oven twenty or thirty minutes.
9. Parboil thick slices of Spanish or other mild onion, season and spread with meat drippings, and grill under gas flame. Serve on rounds of toasted graham bread.
10. Send to the Department of Publications in Washington for the government bulletin on "Care of Foods in the Home."

VEGETABLE ECONOMY.

The use of more vegetables in our diet reduces meat costs, improves health and helps conservation by using perishable foods. The use of local supplies avoids transportation problems. We need vegetables for bulk, for food value, for mineral salts and flavor. Green stuffs are good body regulators, and their generous use cuts down doctors' bills and the profits of tonic makers. Simple salads of vegetables are better than heavy combinations; use them cooked or raw, with oil or cream (sweet or sour). When in doubt between a salad or a cooked dessert choose the salad.

Personal marketing is imperative to obtain good value. Overripe products are far more dangerous than immature ones; badly wilted vegetables are never a bargain. Dried vegetables as meat substitutes cost about half the price of commercially canned goods; the cooking is simple and fuel cost small. Natural products, home-cooked, give the best returns for the investment. Prepared foods are never real substitutes for the meal cooked in our own kitchens.

In buying, plan for second service and save time and fuel; most vegetables may be reheated, and many serve well in salads. A cool, airy space is necessary for storing vegetables. Baskets or wire racks are better containers than boxes or tight compartments. Overcrowding soon causes decay. When refrigeration is necessary odorous foods can be wrapped in clean paper. Melons or bananas will not affect other foods if placed in paper bags. Peeled or cut vegetables wrapped in wet cloth can be placed in such bags to retain moisture and eliminate odors.

Cleaning and cutting vegetables just before the evening meal is both inconvenient and unnecessary. Except potatoes (which can be cooked in many ways without paring while raw), vegetables can be prepared in advance. Fibrous vegetables, like turnips and kohlrabi, can be sliced, green and wax beans cut or broken, and placed in cloth as suggested for refrigerator use. Celery, onions, sprouts and cut cabbage can be left in cold water. Parsnips, carrots and salsify are easily peeled when partly cooked, then finished as usual. Methods depend upon the kind of vegetable.

Careful cookery retains food value and flavor. More vegetables are spoiled through bad cookery than any other foods. Most vegetables are more than half water, so why flood with water in cooking? Adding insult to injury, this common method washes out valuable salts and flavor; then pours them into an unappreciative sink. Rapid cooking saves no time but wastes it by the watchfulness required to prevent scorching. Vegetables boiled furiously in a volume of water lose all character. The boiling point, 212°, is all that can be utilized; half

the gas generally used will accomplish this. Fuel economy is easily practiced by slow cookery. The simmering burner is often advised for slow surface cookery, but the medium burners give steadier heat, with no discoloration of utensil (as sometimes occurs with simmering burner). The heat is spread under entire surface, resulting in even cookery without increased gas consumption.

Water must be boiling at the start (except for green corn and dried vegetables). Water from the boiler should *never* be used. A quart of fresh cold water can be brought to the boiling point in four minutes, so there is no excuse for keeping water in the teakettle to become flat. Broad flat-bottomed utensils are desirable. Salt green vegetables at once, others when partly done. Reduce flame as soon as contents are boiling. Certain vegetables are better cooked with so little water that when done it just serves to moisten the product. With tightly covered utensil and low flame contents cannot boil over or cook dry. With seasoning, a little fat of some kind, and slight thickening if desired, the result is a savory dish and food value is all *there*. Try this out thoroughly, for seeing is believing, and the next time you smell burning food rest content that it is in your neighbor's kitchen, not your own. Asparagus, green, wax and fresh lima beans, new carrots, celery, peas and summer squash are in this class. Spinach requires no moisture but the water which clings after washing; drain this and use in cream soup.

Potatoes. — If bought by the peck, sort on arrival, reserving large ones to bake and small to boil in jackets. When possible cook enough for two meals at one time. Use water to cover and moderate heat. If peeled, save water for bread making. Rapid boiling cooks them to pieces; slow cooking makes them soggy. The easiest way of paring is to boil potatoes ten minutes, drain and skin like scalded tomatoes, then finish cooking in any way desired. This saves potato, time and one's hands. Test with sharp skewer or pointed knife; a fork may break them. Drain *at once* when done, and cover with soft cloth to absorb moisture. They can be kept hot half an hour, and are more mealy than when served at once.

Perfect baked potatoes are essentially home-cooked, and no better food can be found. Thorough scrubbing insures skins that may be eaten. Save time in emergencies by placing potatoes in a deep pan and covering with boiling water for ten minutes, while heating the oven. Dry off before placing in oven, as wet potatoes take ten minutes longer to bake than dry. A crusty skin is produced by greasing the potato before baking. Test by pinching — never pierce — and serve as soon as done. If they *must* wait, roll each one gently in a cloth and soften without breaking skins. An oven temperature of 375° to 400° bakes potatoes well; too slow an oven ruins them, and one too hot wastes both fuel and food.

Artichokes, brussels sprouts, cabbage, cauliflower, kohlrabi, turnips, okra, onions, parsnips and salsify require water to cover, afterward drained off for soups. Cabbage in the form of sauer kraut is most digestible and wholesome. Mushrooms and tomatoes are cooked without water. Rice and macaroni need considerable water and medium fire; grease inside of kettle to prevent sticking or boiling over. The water can be used in bread making, meat cookery or soup. Lentils, soy, kidney and navy beans require long soaking; use the same liquid for cooking. *Never* use soda in vegetable cookery. Cook hominy grits in double boiler, to serve as cereal or with meat.

Butter in vegetable cookery may be substituted by any reliable butterine or oleo (a perfectly wholesome, clean product), or by home-rendered drippings. Delicate vegetables call for the former; strong ones may be enriched with meat fats. Milk in vegetable cookery is an important factor, improving some and extending others. Vegetable soups and chowders made with milk form almost a whole meal. Cream soups of liquid from vegetables and full milk are excellent for children. A thickening of flour, cornstarch, arrowroot, rice flour or soft bread crumbs is often desirable; a hot, smooth, well-seasoned sauce works wonders in agreeable service. Beaten egg yolk added at the last moment enriches and gives delicacy. Cream seems extravagant, but when compared with butter at present prices is equivalent, and often more pleasing.

When the oven is in use boil vegetables there. Begin cookery on top as usual and place utensils on *oven bottom* when bubbling. Enamel or aluminum is best for both covers and containers, the latter without handles for saving space. The cost of a few such articles will be more than paid for in the saving of gas. When meat stock is available it may be substituted for water with savory results.

Household Fats.

"To make one wise dollar do the work of two foolish ones."

HELPFUL HINTS.

1. Give preference to vegetable fats, when it is necessary to buy, to conserve meat products.
2. For cooking and salad use, corn oil is excellent and cottonseed oil satisfactory; vegetable fats in solid form answer perfectly for shortening. Deep frying is tabooed during fat shortage.
3. Butter economy in cooking is best effected by use of oleo or butterine. Cooking butter is a poor substitute. Butterine is a clean, perfectly wholesome food; every pound is government-inspected.
4. Home-rendered fats are most economical, and may be used in general cookery if carefully prepared.
5. Use strained fat from bacon or ham instead of butter in white sauce for milk toast, baked or creamed potatoes, in meat dressing and vegetable cookery.
6. Pork fat is good in baked beans, hashed potatoes, fried apples or bananas, dried vegetables and fish cookery.
7. Beef fat may be used in cooked salad dressing, bread making, crust for meat pies, tomato sauce or savory-made dishes.
8. Combined or single fats of bland flavor serve as shortening for hot breads, simple batters, in soups and vegetable combinations.
9. Savory fats can be used in meat and vegetable cookery.
10. Chicken fat makes good pastry.
11. Corn bread, muffins, biscuit, etc., served *hot* are palatable with almost any rendered fat.

CARE AND USE OF FATS.

Fat is an important food. It furnishes heat and energy in most concentrated form, and is almost completely digested by a normal person. Olive oil, butter, bacon, cream and vegetable fats are valuable foods for children. The laborer at hard work can take care of the heavier fats from beef, mutton and fresh pork. The digestibility of fat depends upon the character and sweetness of it, the temperature to which it has been heated, and the quantity eaten. The energy value of various fats does not differ greatly, but flavor and appearance add to cost of products on the market. True economy consists in utilizing every atom of fat rather than cutting down the supply eaten.

Fat of all kinds should be saved and used. Butchers trim meat and fowl to improve appearance; if we do not claim what we have paid for the dealer sells it a second time for soap making, or renders it himself. Fat is also trimmed from meat at home. It may take several days to accumulate enough to be worth preparing, but in a cool place clear fat will keep for some time. Mutton fat has strong flavor, so is not used as much in cooking as it might be if carefully prepared.

Solid fats from raw or cooked meats must be *rendered*. Used fats and drippings are *clarified*. For rendering, the outer skin and all lean parts are removed, then the fat is cut small, or run through food chopper with coarse adjustment. Strong fat is improved by soaking some hours in cold salt water, rinsing well before heating. To 1 pound of fat add one-third cup of water and cook very slowly. It burns easily after water evaporates, so watch carefully after bubbling ceases. Hot fat, when still, is fairly dry. Overheated fat has bad flavor and is indigestible. In a shallow, closely covered utensil, with flame turned to lowest point, there is no danger of fat cooking too rapidly, and when almost done the cover may be removed to complete evaporation. The steady, even heat of gas accomplishes this at about half a cent an hour. If the oven is in use it is desirable to render fat there and avoid cooking odors. Low temperature is best, but the utensil can be placed in a pan of water in oven if heat is too great. Fats may also be melted in a double boiler without being mixed with liquid, except in the case of mutton, when the use of milk is desirable; one-half cup to a pound of fat will remove some of the strong taste. A pinch of soda or a few pieces of charcoal may also be added to neutralize flavor. Good results are obtained by combining either beef or mutton fat and vegetable oil, in proportion of 3 to 1; the blend improves consistency and modifies flavor. Various seasonings make possible the use of strong fat of duck or goose. The addi-

tion of a sour apple, slice of onion, bay leaf, salt and pepper is good. A combination of herbs also makes savory fat.

The fat skimmed from soup or boiled fowl, corned beef, etc., and the drippings from roasts may be clarified by heating slowly with sliced raw potato until it ceases to bubble. Or, add boiling water to fat, let boil a few minutes and set aside. When cold the fat is removed in a solid cake and the impurities clinging to it scraped off. This process may be repeated several times to make it more clear. Fat *must* be free from moisture to keep well. The surplus fats from roasts and broiled meats have fine flavor, and should be strained while hot to use in future cookery, for basting meat deficient in fat, or reheating meat and making good gravy. Ham and bacon fat may be rendered with crushed egg shells to remove smoky flavor. All rendered and clarified fats must be strained through muslin while hot. As earthenware absorbs odors it is best to keep fats in enamelware or tin, closely covered and in a cool, dark place. Jelly glasses answer well for small amounts, coffee cans for larger quantities.

Spices, molasses and chocolate serve admirably to conceal fats which, while pure and wholesome, have too pronounced a taste. Additional salt is necessary with all fats to give the butter taste.

The cracklings, or crisp bits of sweet rendered fat, are appetizing morsels for sandwich filling, in scrambled eggs, an omelet or stuffed eggs, in corn bread, with hominy grits and sprinkled over milk toast.

Good white soap can be made at home from accumulated fats.

All fats cannot be used for the same purpose, but all are of practical use, as every thrifty housewife discovers. If one questions whether it be worth while to prepare fat of slight cost as a substitute for expensive products, compare the time spent with the result obtained to determine the real economy.

Canning Fruit Syrups.¹

Fruits may be satisfactorily canned without sugar, and those put up especially for young children might better have sugar omitted. The adult taste requires sweetened fruit, and less sugar is required if the fruit is sweetened when canned. Sugar is added in syrup form when the product is canned, and permeates it well during the processing or sterilizing.

It is more economical to can fruits with sugar than to add sugar when using.

In directions given, various grades of syrup are mentioned. These are in the following proportions:—

Thin. — One part sugar to 4 parts water.

Medium. — One part sugar to 2 parts water.

Thick. — One part sugar to 1 part water.

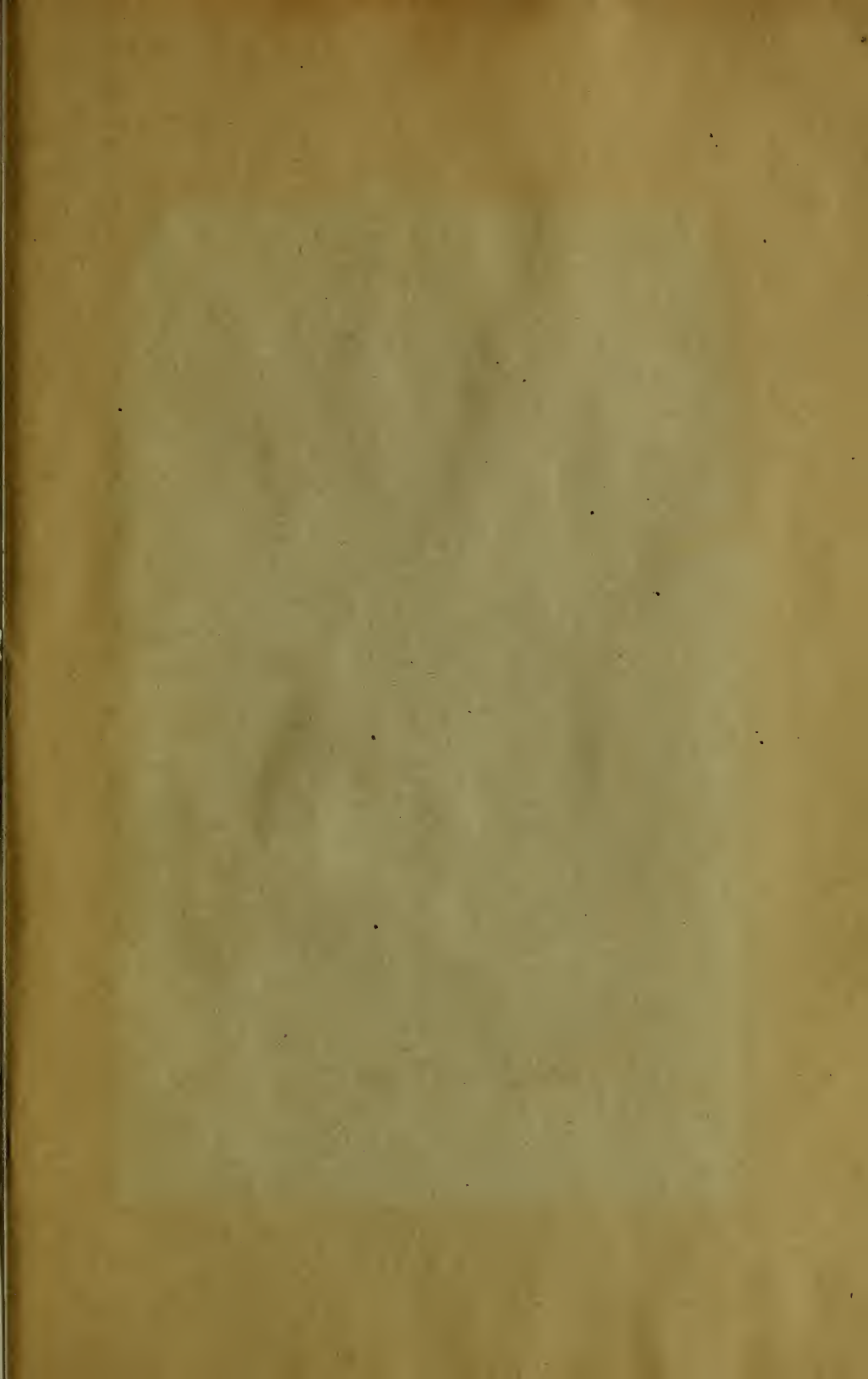
In making the syrup have the water boiling, then add the sugar very gradually. Stir constantly, keeping the liquid boiling until all of the sugar is dissolved. A clear syrup, which rarely needs skimming, results if this method is used.

Thin syrups are used for all sweet fruits, such as cherries, peaches and apples. Use medium syrups with sour fruits, such as strawberries, gooseberries, apricots.

Thick syrup is suitable for preserving, and especially sun-cooked preserves. Thin syrup is not sticky; medium syrup is sticky when cooled on spoon; thick syrup when poured has a thickened appearance.

Care should be taken while using the syrups. The liquid should be added boiling hot to the filled jars, but between times, if allowed to continue boiling, it will change in quality, — a thin syrup in small quantity, rapidly becoming thick. The commission will be glad to answer any questions written on one side of the paper and sent in a self-addressed stamped envelope.

¹ By Laura Buffum, domestic science expert of the National War Garden Commission.



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